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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,388	04/19/2001	Jae Yoon Lee	2658-0234P	7290

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
CLEVELAND, MICHAEL B

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/837,388	LEE ET AL.	
	Examiner	Art Unit	
	Michael Cleveland	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *1-8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 1-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 5.

Definitions

2. "Letterpress" is defined by Merriam-Webster's Collegiate Dictionary, 10 edn., as "the process of printing from an inked raised surface esp. when the paper is impressed directly on the surface" (in contrast to "intaglio": "printing (as in die stamping and gravure) done from a plate in which the image is sunk below the surface"). "Flexography" is defined as "a process of rotary letterpress printing using flexible plates and fast drying inks".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 9, 17, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei et al. (U.S. Patent 5,682,043, hereafter '043) in view of Wright (U.S. Patent 3,661,081, hereafter '081). Ireton (U.S. Patent 4,611,539, hereafter '539) is cited as evidence.

'043 teaches a method of patterning an electroluminescent (EL) display (cols. 1-2), comprising:

flexographic printing a semiconductor ink (col. 10, lines 14-28), which is the light-emitting layer (col. 7, line 13-col. 9, line 28).

Ireton '539 teaches that flexography is understood in the art to mean

providing a flexible printing plate (i.e., a molding plate) adhered to (i.e., disposed on) a plate cylinder or printing roller (i.e., a molding roller), said molding plate having a raised image (i.e., convex and concave portions, with the convex portion (the raise image) defining lands), applying the ink to the raised portion (i.e., each land of the convex portion of the molding plate) and printing the ink from the molding plate onto a substrate by rotating the roller so that the land on each convex portion contacts the substrate.

'043 (and the definition given by Ireton) does not explicitly teach a plurality of convex and concave portions. However, '043 does indicate that different inks may be desired in different locations (col. 7, lines 12-20). Wright '081 illustrates a flexographic process and makes it clear that there may be a plurality of convex printing portions (5) and concave non-printing portions (6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a flexographic plate with a plurality of convex and concave regions with a reasonable expectation of success because '043 indicates that areas with different properties are desired and because '081 teaches that a method of depositing inks in desired areas is to have a plurality of convex and concave regions.

Claim 17: '043 teaches that the polymer may be applied in solution (col. 10, lines 14-17).

Claim 18: '081 teaches that the ink may be supplied to the convex portions of the flexographic roller by rotating it and a supply roller (9) (Fig. 1, col. 3, lines 41-49).

Claim 22: '043 teaches that the layer may be 500 angstroms thick (col. 11, lines 11-13).

Claim 25: '043 teaches that the substrate may be glass (col. 12, lines 27-30).

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081 as applied to claim 9 above, and further in view of Himeshima et al. (U.S. Patent 6,592,933, hereafter '933).

Claims 10: '043 teaches the features of claim 9, as discussed above. It teaches that different materials may be printed in different locations, for example, to apply different colors

(col. 7, lines 12-20). It does not explicitly teach that the colors are red, blue, and green. However, the Examiner takes Official Notice that it is notoriously well known in the art of electroluminescent devices to use red, green, and blue as the colors because red, green, and blue light can be combined to create any color of light. See, for example, '933, col. 5, lines 22-26.

7. Claims 11-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081 and Himeshima '933 as applied to claim 10 above, and further in view of Shinoda (U.S. Patent 5,674,553, hereafter '553).

'043 teaches the features of claim 9, as discussed above. It teaches that different materials may be printed in different locations, for example, to apply different colors (col. 7, lines 12-20). It does not explicitly teach the use of barrier ribs between pixels. However, the Examiner takes Official Notice that it is notoriously well known in the art of electroluminescent devices to use barrier ribs between pixels of different colors in order to provide contrast between the pixels. See, for example, '933, col. 9, lines 34-37.

'933 does not explicitly teach that the barrier ribs are between pixel electrodes on which the El material is deposited. However, '553 teaches an alternate arrangement for spacers and EL layers of EL devices. '553 teaches that pixel electrodes (22) may be formed between barrier ribs (29). See Fig. 20 and 22C. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '043 and '081 to have printed pixels on electrodes between barrier ribs because '553 teaches that such is an operative formation for particular EL devices.

Claims 12 and 20: The barrier ribs of '553 form striped boundaries between pixels.

'933 teaches alternate arrangements for spacers and EL layers of EL devices.

Claim 13: '933 teaches the use of barrier ribs comprising first spacers (3) and second spacers (4) (col. 9, lines 1-20). '933 teaches that an upper portion of the barrier ribs (3) may overlap the edge of pixel electrodes (2) (See Fig. 14) to form an inter-layer insulation layer (col. 9, lines 13-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used overlapped the pixel electrodes of '504 with an upper

portion of its barrier ribs 5 because '933 indicated that such a configuration would have advantageously provided an inter-layer insulation layer.

Claim 14: '553 teaches that the height of the barrier rib is larger than the combined thickness of the EL material and pixel electrode. See Fig. 20.

Claims 15-16: '933 teaches a list of known materials for spacers in EL devices. The spacers include glass (SiO_2) and polyimide (col. 9, lines 21-46).

8. Claims 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081 as applied to claim 9 above, and further in view of Mourrellone (U.S. Patent 4,542,693, hereafter '693).

'043 and '081 teach the features of claim 18, as discussed above. '081 teaches that the amount of ink on the supply roller may be controlled, but the references do not explicitly teach causing the EL material to have a uniform thickness on the supply roller.

'693 teaches for a device comprising a letterpress (col. 1, lines 1-16) ink cylinder (T) and supply roller (A) that the provision of an equalizing roller (9) that provides an ink layer of uniform thickness on supply roller (A) (claim 8) advantageously improves the regularity of ink application and avoids the formation of undesired stripes (col. 7, lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have caused the EL ink of '504 to have had a uniform thickness on the supply roller by using the equalizing roller of '693 because '693 teaches that such an equalizing roller would have improved the regularity of the ink application and avoided the formation of undesired stripes.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081, Himeshima '933, and Shinoda '553 as applied to claim 11 above, and further in view of Nagayama et al. (U.S. Patent 5,701,055, hereafter '055).

'043, '081, '933, and '553 are discussed above, but do not explicitly teach that the barrier ribs are in the form of a matrix. However, '055 teaches an alternate arrangement for spacers and EL layers of EL devices. '055 teaches that pixel electrodes (22) may be a matrix between pixels. See Figs. 1 and 19. The selection of something based on its known suitability for its intended

use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '043 and '081 to have printed pixels on electrodes between a matrix of barrier ribs because '055 teaches that such is an operative formation for particular EL devices.

10. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081 as applied to claim 9 above, and further in view of Watanabe et al. (U.S. Patent 5,270,846, hereafter '846).

'043 and '081 teach the features of claim 9, as discussed above. '081 teaches that flexographic inks assume level surfaces (col. 1, lines 23-26), but does not explicitly teach that the ink levels after printing. However, '846 also teaches that inks printed from rollers may also be leveled after printing (col. 12, lines 28-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have leveled the surface on the ink after printing in order to have achieved the desired thickness.

Claim 24: '043 teaches that the layers are heated after printing (col. 11, lines 11-15).

Response to Arguments

11. Applicant's arguments filed 6/3/2004 have been fully considered but they are not persuasive.

Applicant's discussion of additional support for the limitation "applying an electroluminescent material to *each* land of the convex portions of the molding plate" (emphasis added by Examiner) is noted. The Examiner disagrees that support for the limitation is explicit because the support does not explicitly appear, but relies on the implications of the Figures and quoted sections. However, the Examiner agrees that the cited information provides further evidence that the limitation is fairly supported by the specification as originally filed. Note that no rejection under 35 USC 112, 1st paragraph is applied to the current (or former) claims.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Thus, Applicant's argument that Wright discloses printing on a flexible web, rather than on a rigid glass EL substrate is not convincing because it does not address the teachings of Pei that flexography may be used to print the EL material for an EL device. Applicant argues that Pei does not disclose the details of flexography. Accordingly, one of ordinary skill in the art of EL devices would either have understood flexography or would have been motivated to seek out the details of flexographic processes in order to have understood Pei. Wright is exemplary of the basic details of flexography that would have been found.

Applicant argues that Ireton does not disclose EL devices. The argument is unconvincing because Ireton does not form a piece of the rejection, but is instead cited as a definition of the term "flexography" in Pei. Therefore, its context is irrelevant.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (703) 308-2331. The examiner can normally be reached on 8-5:30 M-F, with alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-3186 for regular communications and (703) 306-3186 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Michael Cleveland
Patent Examiner
August 6, 2004